



Air Quality Permitting Statement of Basis

May 11, 2007

**Tier II Operating Permit and Permit to Construct
No. P-2007.0017**

RDO Processing, LLC, Dubois

Facility ID No. 033-00002

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AIR QUALITY DIVISION

PROPOSED for PUBLIC COMMENT

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Acronyms, Units, and Chemical Nomenclature

AACC	acceptable ambient concentration for carcinogens
acfm	actual cubic feet per minute
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EL	screening emission level
EPA	Environmental Protection Agency
HAPs	Hazardous Air Pollutants
IDAPA	A numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pound per hour
m	meter(s)
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
PSD	Prevention of Significant Deterioration
PTC	Permit to Construct
PTE	Potential to Emit
RDO	RDO Processing, LLC
Rules	Rules for the Control of Air Pollution in Idaho
SO ₂	sulfur dioxide
SO _x	sulfur oxides
TAP	toxic air pollutant
T/yr	Tons per year
µg/m ³	micrograms per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01 Sections 201 and 404.04, Rules for the Control of Air Pollution in Idaho (Rules) for Tier II operating permits and Permits to Construct.

2. FACILITY DESCRIPTION

RDO Processing, LLC (RDO) processes dehydrated potato products at the facility located near Dubois, Idaho. The process primarily involves potato dehydration to make potato flakes. Potatoes are cleaned, peeled, cooked and sized prior to being transferred into a drying unit. The main sources of emissions include boilers, dryers, dehydration lines, pneumatic material transfer equipment and packaging lines. Some dryers are of the direct-fired type and some use steam from the boilers.

3. FACILITY / AREA CLASSIFICATION

RDO is a major facility as defined under IDAPA 58.01.01.008 for purposes of the Title V program because the actual or potential emissions of SO₂ and NO_x exceed 100 tons per year. RDO is not a major facility as defined under IDAPA 58.01.01.205.01 (40 CFR 52.21(b)(1)) for purposes of the PSD/NSR program. The AIRS classification is "A."

The facility is located within AQCR 61 and UTM zone 12. The facility is located in Clark County which is designated as unclassifiable for all criteria pollutants (PM₁₀, CO, NO_x, SO₂, lead, and ozone).

The AIRS information did not change as a result of this PTC action, so the AIRS form has not been included. Refer to the AIRS information provided in Appendix A of the statement of basis for permit T2-060510, which defines the classification for each regulated air pollutant at RDO's Dubois facility. This required information is entered into the EPA AIRS database.

4. APPLICATION SCOPE

The purpose of this Tier II operating permit and permit to construct (PTC) is to:

- Permit the following changes for Boiler No. 1:
 - Increase the stack height from 45 feet to 101 feet, and reduce the stack exit diameter from 6.65 feet to 5.25 feet.
 - Increase the allowable fuel oil nickel content from 1.67E-06 pounds of nickel by weight per 1,000 gallons (lb/1,000 gallons) to 8.45E-02 lb/1,000 gallons.

4.1 Application Chronology

February 12, 2001	Receipt of PTC application to modify the Tier II operating permit and PTC.
March 13, 2007	Application determined to be complete. Note: Regional review and facility review omitted due to the very minor changes to the permit compared to permit T2-060510, which is being issued concurrently with this PTC for public comment.
May 11, 2007	Issue proposed permit to the Idaho Falls Regional Office and the facility.

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this Tier II and PTC.

5.1 Equipment Listing

Table 5.1 lists all sources of regulated emissions in this permit.

Table 5.1 SUMMARY OF REGULATED SOURCES		
Emissions Unit(s) / Processes	Emissions Control Device	Emissions Point
<u>Fuel Oil Storage Tanks: Nos. 1, 2, and 3</u> Capacity: 30,000 gallons each Type: Vertical, fixed roof Size: Shell Height 26 ft, Diameter 14 ft Paint: White painted shell and dome roof	None	No Stacks
<u>Propane Heaters: Nos. 1, 2, and 3</u> Manufacturer: Maxon Model: SC Burner Type: Horizontally-fired, 100% space heating Rating: 1.2 MMBtu/hr Fuels: propane, natural gas	None	<u>REC 1</u> Stack Height: 35.38 feet <u>REC 2</u> Stack Height: 34.58 feet <u>REC 3</u> Stack Height: 35.58 feet <u>REC 1, REC 2, and REC 3:</u> All stacks are vertical, with cap Stack Exit Diameter: 0.4 feet Exhaust Flow Rate: 0.025 acfm Exit Gas Temperature: 90°F
<u>Boiler No. 1</u> Manufacturer: Nebraska Boiler Manufacture Date: 1996, Modified: after Feb 28, 2005 Model: NS-F-89-ECON, Serial No. D-3465 Burner Type: Horizontally-fired, Low NO _x burner Rating: 150 MMBtu/hr Heat Release Rate: 73,400 Btu/hr-ft ³ Fuels/Max Usage: ASTM Grades 1 - 6 fuel oil (max 1.75% S): 1,041 gal/hr, 9.12E6 gal/year Propane: 1,596 gal/hr, 1.4E07 gal/yr Natural Gas	<u>Lime Slurry Scrubber with venturi</u> Mfr: Innovative Scrubber Solutions, Inc. Efficiency: 92% for SO ₂ Mfr Guarantee: 0.03 lb/MMBtu for PM ₁₀	<u>BOILER NO. 1 Stack:</u> Stack Height: 101 feet Stack Exit Diameter: 5.25 feet Exhaust Flow Rate: 43,457 acfm Exit Gas Temperature: 123°F
<u>Boiler No. 2</u> Manufacturer: Superior Boiler Works Model: 6-5-100-S150-GP Burner Type: Horizontally-fired Rating: 6.7 MMBtu/hr Fuels: Propane, natural gas Fuel Usage: max. 6,381 scf/hr, 55.9 MMscf/year	None	<u>BOILER NO. 2 Stack:</u> Stack Height: 41.42 feet Stack Exit Diameter: 1.66 feet Exhaust Flow Rate: 2,880 acfm Exit Gas Temperature: 355°F
<u>Fluidized Bed Dryer</u> Manufacturer: Maxon Model: Ovenpak 400, Size 415H Burner Type: Horizontally-fired Rating: 4.5 MMBtu/hr Fuels/Max Usage: Propane, natural gas Feed Material: Potatoes Process Rated Capacity: 2,000 lb/hr	None	<u>FLD DYR Stack:</u> Stack Height: 39.42 feet Horizontal discharge Stack Diameter: 1.92 ft ^a Modeled: Stack Exit Diameter: 0.0033 feet Exhaust Flow Rate: 1.7E-06 acfm Exit Gas Temperature: 110°F

Table 5.1 SUMMARY OF REGULATED SOURCES

Emissions Unit(s) / Processes	Emissions Control Device	Emissions Point
<u>Multi-Stage Belt-type Dryer, Stage A (Stacks A1 and A2)</u> Manufacturer: National Dryer Model: Eclipse 200 AM Burner Type: Horizontally-fired Rating: 3.6 MMBtu/hr Fuels: propane, natural gas Feed Material: Potatoes Process Rated Capacity: 1,500 lb/hr	None	<u>NAT A1 Stack:</u> Stack Height: 46 feet, no cap Vertical discharge Stack Diameter: 2.68 ft ^a Modeled: Stack Exit Diameter: 0.0033 feet Exhaust Flow Rate: 1.7E-06 acfm Exit Gas Temperature: 150°F <u>NAT A2 Stack:</u> Stack Height: 46 feet, no cap Vertical discharge Modeled: Stack Exit Diameter: 0.0033 feet Exhaust Flow Rate: 1.7E-06 acfm Exit Gas Temperature: 176°F
<u>Multi-Stage Belt-type Dryer, Stage B</u> Manufacturer: National Dryer Model: Eclipse 160 AM Burner Type: Horizontally-fired Rating: 3.6 MMBtu/hr Fuels: propane, natural gas Feed Material: Potatoes Process Rated Capacity: 1,500 lb/hr	None	<u>NAT B Stack:</u> Stack Height: 46 feet, no cap Vertical discharge Modeled: Stack Exit Diameter: 0.0033 feet Exhaust Flow Rate: 1.7E-06 acfm Exit Gas Temperature: 167°F
<u>Multi-Stage Belt-type Dryer, Stage C</u> Manufacturer: National Dryer Model: Eclipse 160 AM Burner Type: Horizontally-fired Rating: 3.6 MMBtu/hr Fuels: propane, natural gas Feed Material: Potatoes Process Rated Capacity: 1,500 lb/hr	None	<u>NAT C Stack:</u> Stack Height: 46 feet, no cap Vertical discharge Modeled: Stack Exit Diameter: 0.0033 feet Exhaust Flow Rate: 1.7E-06 acfm Exit Gas Temperature: 148°F
<u>Flaker Drum Dryers, Nos. 1-12 (Dehydrators)</u> Manufacturer: Various Model: Various Feed Material: Potato Flakes Rated Capacity: 90,000 lb/hr	None	<u>DRUM1 through DRUM12 Stacks:</u> Stack Height: 45.58 feet, with cap Vertical discharge Stack Exit Diameter: 3.58 feet Modeled Flow Rate: 0.0033 ft/sec Exit Gas Temperature: 125°F
<u>Flake Packaging Bulk Line</u> Manufacturer: Various Model: Various Feed Material: Potato Flakes Rated Capacity: 12,000 lb/hr	<u>Primary: Cyclone:</u> Mfr: Idaho Steel Efficiency: 90% <u>Secondary: Baghouse:</u> Mfr: Micropulsair Model: #25-S-8-30-C Efficiency: 99%	<u>FP BULK Stack:</u> Stack Height: 38.75 feet Stack Exit Diameter: 0.33 feet Exhaust Flow Rate: 1,675 acfm Exit Gas Temperature: 68°F (ambient)
<u>Flake Packaging Line</u> Manufacturer: Various Model: Various Feed Material: Potato Flakes Rated Capacity: 8,000 lb/hr	<u>Primary: Cyclone:</u> Mfr: Idaho Steel Efficiency: 90% <u>Secondary: Baghouse:</u> Mfr: Micropulsair Model: #12-8-160C Efficiency: 99%	<u>FP Stack:</u> Stack Height: 39.59 feet Stack Exit Diameter: 4 feet Exhaust Flow Rate: 14,024 acfm Exit Gas Temperature: 68°F (ambient)
<u>Flake Packaging Torit Line</u> Manufacturer: Various Model: Various Feed Material: Potato Flakes Rated Capacity: 8,000 lb/hr	<u>Baghouse:</u> Mfr: Torit Model: TD-162 Efficiency: 99%	<u>FP TOR Stack:</u> Stack Height: 33.92 feet, with cap Vertical discharge Stack Exit Diameter: 0.25 feet Modeled Flow Rate: 9.7E-03 acfm Exit Gas Temperature: 68°F (ambient)

Table 5.1 SUMMARY OF REGULATED SOURCES		
Emissions Unit(s) / Processes	Emissions Control Device	Emissions Point
<u>Flake Packaging Drum</u>	<u>Flake Packaging Drum Negative Air Baghouse</u> Process Feed Material: Potato Flakes Rated Capacity: 18,000 lb/hr Process Equipment or Air Pollution Control Equipment: Process equipment (product recovery) <u>Primary: Cyclone:</u> Mfr: Idaho Steel Efficiency: 90% <u>Secondary: Baghouse:</u> Mfr: Nol-Tech Systems Model: 238 Efficiency: 99%	<u>FP_BH Stack:</u> Stack Height: 37.42 feet Stack Exit Diameter: 1.53 feet Exhaust Flow Rate: 12,000 acfm Exit Gas Temperature: 68°F (ambient)
<u>Tote Dump Station</u>	<u>Tote Dump Station Cyclone</u> Manufacturer: Custom-made Feed Material: Agglomerated potato flake Process Throughput: 1,750 lb/hr Process Equipment or Air Pollution Control Equipment: Process equipment (product recovery)	<u>CYCLONE Stack:</u> Stack Height: 44.08 feet Non-vertical discharge Modeled: Stack Exit Diameter: 0.0033 feet Exhaust Flow Rate: 1.7E-06 acfm Exit Gas Temperature: 68°F (ambient)

^a Exit diameters and flow rates given in application are the modeled values, which used DEQ guidance default velocities and diameters to account for the presence of a cap (for the Drum Dryers) and modeling the vertical National Dryer stacks as horizontal releases. Actual stack diameters shown were calculated from stack areas given in the December 23, 2004 source test report.

5.2 Emissions Inventory

Increasing the increased maximum nickel content for the fuel oil used in Boiler No. 1 results in an increase in nickel emissions from 1.74E-06 pounds per hour (lb/hr) to 8.80E-02 lb/hr. This rate was estimated by using the AP-42 emission factor of 8.45E-02 lb of nickel per 1,000 gallons of fuel oil combusted, and a full load fuel consumption rate of 1,041 gallons per hour.

At 8,760 hours per year, the 8.80E-02 lb/hr increase in emissions results in an increase of 0.39 tons per year of nickel.

5.3 Modeling

The increase in the nickel emissions of 8.80E-02 lb/hr (annual average, based on 8,760 hours per year of operation) exceeds the screening emission level of 2.7E-05 lb/hr listed in IDAPA 58.01.01.586. Modeling of the increased nickel emissions was therefore required.

DEQ approved modeling of the increase in nickel emissions using the same modeling files submitted to demonstrate facility-wide compliance for permit T2-060510, except for the changes in the nickel emission rate, and Boiler No. 1 stack height and diameter. Please refer to the statement of basis for permit T2-060510 for the detailed review of the modeling analysis.

Modeling demonstrated that the ambient impact associated with this increase in nickel emissions from Boiler No. 1 was 3.35E-03 µg/m³, or about 79.8% of the 4.20E-03 µg/m³ acceptable ambient concentration for carcinogens (AACC) increment listed in IDAPA 58.01.01.586 for nickel.

5.4 **Regulatory Review**

This section describes the regulatory analysis of the applicable air quality rules with respect to this T2 and PTC.

IDAPA 58.01.01.201.....Permit to Construct Required

The increase in the fuel oil nickel content for fuel combusted in Boiler No. 1 resulted in an emissions increase greater than the screening emissions level so does not meet criteria to be exempt. The increase in the allowable nickel content also requires a revision to an existing permit condition. A PTC is therefore required.

IDAPA 58.01.01.203.03.02.....Demonstration of Preconstruction Compliance with NAAQS

Compliance with the NAAQS has been demonstrated in the permit application. Refer to the modeling section above for details.

IDAPA 58.01.01.203.03 and 210.....Demonstration of Preconstruction Compliance with Toxics Standards

For each modification project after June 30, 1995, the TAP rules apply only to the increase in TAP emissions associated with that particular modification. The increase in the maximum allowable fuel nickel content for Boiler No. 1 result in incremental increases in TAPs emissions.

Compliance with toxics standards has been demonstrated in the permit application. Refer to the modeling section above for details.

IDAPA 58.01.01.204.....Permit Requirements for New Major Facilities or Major Modifications in Attainment or Unclassifiable Areas

RDO is not a major facility for purposes of the NSR/PSD program as defined under IDAPA 58.01.01.205.01 [40 CFR 52.21(b)(1)(a), (b), and (c)] because the facility is not a designated facility, and the potential to emit for any regulated NSR pollutant will be limited to less than 250 tons per year by federally enforceable conditions in this Tier II/PTC permit.

5.5 **Fee Review**

An application fee of \$1,000 is required in accordance with IDAPA 58.01.01.224. The application fee was received by DEQ on February 12, 2007. A permit processing fee of \$1,000 is required in accordance with IDAPA 58.01.01.225, because the permit required engineering analysis and the increase in emissions from point sources is less than one ton per year. The RDO facility near Dubois is a major facility as defined in IDAPA 58.01.01.008. Therefore, Tier I registration fees are applicable in accordance with IDAPA 58.01.01.387. As of May 12, 2007, the current balance due for Tier I fees is \$0.00.

Table 5.1 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO _x	0.0	0	0.0
SO ₂	0.0	0	0.0
CO	0.0	0	0.0
PM ₁₀	0.0	0	0.0
VOC	0.0	0	0.0
HAPS	0.39	0	0.39
Total:	0.39	0	0.39
Fee Due	\$ 1,000.00		

5.6 Regional Review of Draft Permit

Electronic copies of the facility draft permit and statement of basis for permit T2-060510 were provided to the Idaho Falls Regional Office on December 11, 2006. Responses were received December 13 stating they had no comments. Regional office review of the minor changes associated with this PTC action will occur during the public comment period.

5.7 Facility Review of Draft Permit

Electronic copies of the facility draft permit and statement of basis for permit T2-060510 were provided to the permittee on December 15, 2006. Comments were received on January 12, 2007. DEQ determined that comments that constituted a change of scope (i.e., raising the Boiler No. 1 stack height from 45 feet to 101 feet, increasing the nickel content of the fuel oil, and rerunning the modeling for the higher nickel emissions) must be submitted as a separate PTC project. The changes to permit T2-060510 from this PTC action are limited to revising Table 1.1 to reflect the changes in the Boiler No. 1 stack, and revising Permit Condition 3.15 to increase the allowable fuel oil nickel content from 1.67E-06 lb/1,000 gallons to 8.45 lb/1,000 gallons. The facility will have an opportunity to review these minor changes in the proposed permit during the public comment period.

6. PERMIT CONDITIONS

This section describes only those permit conditions that have been revised, modified, or deleted as a result of this permit action. All other permit conditions remain unchanged. Permit conditions related to the modified permit are identified as Permit Conditions. Permit conditions related to the pending permit T2-060510 are identified as Existing Permit Conditions.

Existing Permit Condition 1.3, Table 1.1 was revised to reflect the increase in the stack height, decrease in the stack exit diameter, and slight decrease in the exhaust flow rate for the Boiler No. 1 stack.

Existing Permit Condition 3.15 was revised to increase the maximum allowable fuel oil nickel content from 1.67E-06 lb/1,000 gallons to 8.45E-02 lb/gallons.

7. PUBLIC COMMENT

To facilitate the public's review of the changes associated with this permit action, this proposed permit is being issued concurrently with the proposed Tier II operating permit and permit to construct T2-060510. Rather than an opportunity for public comment for the PTC action, a public comment period will be held for both permits at the same time. [For Final: The public comment period started on

DATE and ended **DATE**. Comments regarding DEQ's proposed action **WERE / WERE NOT** received.]

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommend that RDO Processing, LLC be issued a proposed Tier II and PTC No. P-2007.0017 for the increase in the maximum allowable fuel oil nickel content and to reflect modifications to the Boiler No. 1 stack. The project does not involve PSD requirements.

CR/xx Permit No. P-2007.0017